

**DETAILED ACTION**

***Status of the Claims***

1. Claims 1, 3-5, 7-12, 14-20 are pending.

Claims 3, 8-10, 14-18 are withdrawn

Claims 1, 7, 11, 12, 19, and 20 are rejected.

Claims 4 and 5 are objected to.

***Specification***

2. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). A computer readable form (CRF) of the sequence listing was submitted. However, the CRF could not be processed by the Scientific and Technical Information Center (STIC) for the reason(s) set forth on the attached CRF Diskette Problem Report.

Applicant is required to comply with the sequence rules, 37 CFR 1.821 - 1.825. Applicant is requested to return a copy of the attached CRF Diskette Problem Report with the reply. Any response to this office action which fails to meet all of these requirements will be considered non-responsive. The Applicant's attention is directed to the attached Notice to Comply with the Sequence Rules. The nature of the sequences disclosed in the instant application has allowed an examination on the merits, the results of which are communicated below.

3. The amendment filed 16 April 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not

supported by the original disclosure is as follows: The seven structures of T<sup>1</sup>, T<sup>2</sup>, and T<sup>3</sup> added to pages 14 and 15.

Applicant is required to cancel the new matter in the reply to this Office Action.

*Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 11, 19, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), **at the time the application was filed**, had possession of the claimed invention.

The claims are drawn to derivatized nucleic acids that function as transistors.

The specification at the time of filing discussed derivatized nucleic acids that function as transistors in example 1, page 14, and more generally on pages 12, 13, and 18, but only shows structures of such compounds as containing T<sup>1</sup> and T<sup>2</sup> without describing what the symbols represent. The specification referred at the time of filing to a nonexistent prior section entitled "Description of the Preferred Embodiments" as detailing the structure of the claimed compounds. Without description of the structure of nucleic acid transistors the specification cannot describe the claimed subject matter.

In the amendment filed 16 April 2008, the applicants have amended the specification to contain structures of T<sup>1</sup> and T<sup>2</sup>. However, as discussed above the amendment represents new

matter and the rejection of claims 11, 19, and 20 as lacking written description at the time the application was filed is maintained.

6. The rejection of claims 12, 13, and 19 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention in the Office action mailed 16 November 2006 is withdrawn in view of the amendment filed 16 April 2008.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 7, 11, 12, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Technion Research and Development and Foundation (Technion).

The claims are drawn to compounds comprising DNA and modifying groups that allow for conduction of electrons. In some embodiments the composition functions as a transistor or a field effect transistor.

Technion shows a composition comprising DNA associated with metallic groups in figure 3A and at least pages 41-49, and that such compositions function as a transistor in figure 6 and at least pages 51-52, and as a field effect transistor in figures 12A and 12B.

9. Applicant's arguments filed 16 April 2008 have been fully considered but they are not persuasive. The applicants state that Technion does not show DNA associated with metal groups, but instead shows DNA associated to metal. However the claimed subject matter does not have a

limitation that DNA is associated with metal groups. In addition, the applicants have not shown what the distinction is between the DNA associated with metal, as shown in figure 3A of Technion and DNA associated with a metal group.

***Allowable Subject Matter***

10. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Brusca whose telephone number is 571 272-0714. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie A. Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Brusca/  
Primary Examiner  
Art Unit 1631

jsb